CLAIM AMENDMENTS

1. *(Currently amended)* A method of ~~producing a cell population depleted of~~ depleting undifferentiated stem cells from a cell population, comprising:

   a) obtaining a cell population that comprises both differentiated cells and undifferentiated stem cells;

   ~~a)~~ b) genetically altering undifferentiated stem cells in the population so that they contain a nucleic acid molecule comprising ~~the structure~~ P–X, wherein X is nucleic acid sequence that causes expression of a cell surface antigen not normally expressed in the population, and P is a transcriptional control element operatively linked to X, such that the surface antigen is expressed in the undifferentiated stem cells; ~~and~~

   ~~b)~~ c) depleting undifferentiated cells from the population by combining the cells with a ligand specific for the antigen ; and

   d) culturing the remaining differentiated cells.

2. *(Previously Presented)* The method of claim 14, wherein the undifferentiated stem cells are primate pluripotent stem (pPS) cells.

3. *(Previously Presented)* The method of claim 15, wherein the ligand is an antibody or a lectin.

4. *(Previously Presented)* The method of claim 15, comprising combining the cells with ligand specific for the antigen, and separating cells that have not bound the ligand.

5. *(Previously Presented)* The method of claim 15, comprising combining the cell population or progeny thereof with complement and antibody specific for the antigen under conditions that permit the complement to lyse cells to which the antibody has bound.

6. *(Previously Presented)* The method of claim 14, wherein X encodes a glycosyltransferase.

7. *(Original)* The method of claim 6, wherein X encodes an α(1,3)galactosyltransferase.

8. *(Currently amended)* The method of claim 6, wherein X encodes ~~an ABO blood Group transferase~~ an A or B transferase from the ABO Blood Group system.

9. *(Previously Presented)* The method of claim 14, wherein P is an OCT-4 promoter or a promoter of telomerase reverse transcriptase (TERT).

10. *(Currently amended)* The method of claim 14, wherein ~~P–X is an introduced heterologous molecule~~ the cells have been genetically altered using a vector comprising P-X.

11. *(Currently amended)* The method of claim 14, wherein ~~P is an endogenous transcriptional control element~~ the cells have been genetically altered to place X under control of a promoter (P) present in the cell genome.

12. *(Currently amended)* The method of claim 15, ~~further comprising~~ wherein a) comprises genetically altering the cell population such that P–X is transiently expressed in undifferentiated cells in the population.

13. *(Currently amended)* The method of claim 15, ~~further comprising~~ wherein a) comprises genetically altering the cell population such that P–X is inherited by progeny of cells in the population, ~~becoming~~ and thereby expressed in undifferentiated progeny.

14. *(Currently amended)* A method of producing differentiated cells, comprising

a) obtaining a cell population comprising undifferentiated stem cells that have been genetically altered to contain a nucleic acid molecule comprising ~~the structure~~ P–X, wherein X is nucleic acid sequence that causes expression of a cell surface antigen not normally expressed in the population, and P is a transcriptional control element operatively linked to X, such that the surface antigen is expressed in undifferentiated cells; ~~and~~

b) causing at least some undifferentiated cells in the population to differentiate ; and

c) culturing the remaining differentiated cells.

15. *(Original)* The method of claim 14, further comprising depleting undifferentiated cells from the population by combining the cells with a ligand specific for the antigen.

16 to 22. *(CANCELLED)*

23. *(New)* The method of claim 12, wherein a) comprises genetically altering the cell population with an adenovirus vector comprising P–X.

24. *(New)* The method of claim 13, wherein a) comprises genetically altering the cell population with a DNA plasmid or retrovirus vector comprising P–X.

25. *(New)* The method of claim 1, wherein the ligand is an antibody or a lectin.

26. *(New)* The method of claim 1, comprising combining the cells with ligand specific for the antigen, and separating cells that have not bound the ligand.

27. *(New)* The method of claim 1, comprising combining the cell population or progeny thereof with complement and antibody specific for the antigen under conditions that permit the complement to lyse cells to which the antibody has bound.

28. *(New)* The method of claim 1, wherein X encodes a glycosyltransferase.

29. *(New)* The method of claim 1, wherein P is a TERT promoter.

30 *(New)* The method of claim 1, wherein the promoter is an OCT-4 promoter.

31. *(New)* A method for preparing cells, comprising:

a) obtaining human embryonic stem (hES) cells that have been genetically altered so as to transcribe a nucleic acid sequence under control of a promoter that preferentially drives transcription in undifferentiated hES cells, wherein transcription of the nucleic acid causes expression of a surface antigen not normally expressed by the cells;

b) differentiating the hES cells; and then

c) formulating the differentiated cells for administration to a mammalian host.

32. *(New)* The method of claim 31, wherein the hES cells have been genetically altered to place the nucleic acid sequence under control of a promoter present in the cell genome.

33. *(New)* The method of claim 31, wherein the hES cells have been genetically altered to place the nucleic acid sequence under control of a heterologous promoter.

34. *(New)* The method of claim 31, wherein the promoter is a TERT promoter.

35. *(New)* The method of claim 31, wherein the promoter is an OCT-4 promoter.

36. *(New)* The method of claim 31, wherein the nucleic acid sequence encodes a cell surface protein not normally expressed in human cells.

37. *(New)* The method of claim 31, wherein the nucleic acid encodes a glycosyltransferase that causes expression of a cell surface carbohydrate to which some humans have naturally occurring antibody.

38. *(New)* The method of claim 31, wherein b) comprises differentiating the hES cells into neural cells.

39. *(New)* The method of claim 31, wherein b) comprises differentiating the hES cells into hepatocytes.

40. *(New)* The method of claim 31, further comprising depleting undifferentiated hES cells before the differentiated cells are formulated for administration to a mammalian host.

41. *(New)* The method of claim 40, comprising combining the cells with ligand specific for the antigen, and separating cells that have not bound the ligand.

42. *(New)* The method of claim 40, comprising combining the cell population or progeny thereof with complement and antibody specific for the antigen under conditions that permit the complement to lyse cells to which the antibody has bound.

43. *(New)* A method of depleting undifferentiated stem cells from a cell population, comprising:

a) obtaining a cell population that comprises both differentiated cells and undifferentiated human embryonic stem (hES) cells;

b) genetically altering the hES cells so as to transcribe a nucleic acid sequence under control of a promoter that preferentially drives transcription in undifferentiated hES cells, wherein transcription of the nucleic acid causes expression of a surface antigen not normally expressed by the cells;

c) depleting undifferentiated cells from the population by combining the cells with a lectin or antibody specific for the antigen; and

d) formulating the differentiated cells for administration to a mammalian host.

44. *(New)* The method of claim 43, wherein the promoter is a TERT promoter.

45. *(New)* The method of claim 43, wherein the promoter is an OCT-4 promoter.

46. *(New)* The method of claim 43, wherein c) comprises combining the cells with lectin or antibody specific for the antigen, and separating cells that have not bound the lectin or antibody.

47. *(New)* The method of claim 43, wherein c) comprises combining the cell population or progeny thereof with complement and antibody specific for the antigen under conditions that permit the complement to lyse cells to which the antibody has bound.

Upon allowance of the application, please renumber the claims as follows:

Claim	1	→	17	Claim	28	→	21
	2	→	2		29	→	22
	3	→	10		30	→	23
	4	→	11		31	→	24
	5	→	12		32	→	25
	6	→	3		33	→	26
	7	→	4		34	→	27
	8	→	5		35	→	28
	9	→	6		36	→	29
	10	→	7		37	→	30
	11	→	8		38	→	31
	12	→	13		39	→	32
	13	→	15		40	→	33
	14	→	1		41	→	34
	15	→	9		42	→	35
	23	→	14		43	→	36
	24	→	16		44	→	37
	25	→	18		45	→	38
	26	→	19		46	→	39
	27	→	20		47	→	40